SAF-RC-048 100 Area and 300 Area Component of the RCBRA Water Sampling FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Jill Thomson

H0-23

NB 4/20/06 INITIAL/DATE

Jeanette Duncan

H9-02

NB 4/20/06_

COMMENTS:

SDG <u>J00066</u>

SAF-RC-048

Rad only

X Chem only

Rad & Chem

X Complete

Partial

Waste Site: 199-N-16, 199-N-92A, 199-N-28



Analytical Data Package Prepared For



Washington Closure Hanford

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains 23 Pages

Report No.: 31649

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
J00066	RC-048	J11J32	J6C060172-2	H0PFC1AA	9H0PFC10	6065446
		J11J33 J	J6C060172-1	H0PE91AA	9H0PE910	6065446
		J11J35 J	J6C060172-3	HOPFD1AA	9H0PFD10	6065446

Certificate of Analysis

Washington Closure Hanford 3190 George Washington Way Richland, WA 99354

March 20, 2006

Attention: Joan Kessner

SAF Number : RC-048
Date SDG Closed : March 2, 2006
Number of Samples : Three (3)
Sample Type : Water
SDG Number : J00066

Data Deliverable : 45-Day / Summary

CASE NARRATIVE

I. Introduction

On March 2, 2006, three water samples were received at STL Richland (STLR) for chemistry analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	STLR ID#	MATRIX	DATE OF RECEIPT
J11J33	HOPE9	WATER	3/2/06
J11J32	H0PFC	WATER	3/2/06
J11J35	H0PFD	WATER	3/2/06

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors. The requested analyses were:

Chemical Analysis

Hexavalent Chromium by EPA method 7196A

STL RICHLAND

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Chemical Analysis

Hexavalent Chromium by EPA method 7196A:

The LCS, batch blank, sample, sample matrix spike (J11J32), sample matrix spike duplicate (J11J32) and sample duplicate (J11J32) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Hans Carman Project Manager

STL RICHLAND

Drinking Water Method Cross References

	DRINKING WAT	ER ASTM METHOD CROSS REFERENCES
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritlum	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-2-	41 (unless otherwi	se specified in the case narrative)
The Gross Beta LCS is prepared with Sr/Y-96) (unless otherwise	e specified in the case narrative)

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev An agreed upon activity level used to frigger some action when the final result is greater than or equal to the Action Level. Other the Action Level Decision Limit. Batch The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together. Bias Defined by the equation (Result/Repected)—I as defined by ANSI N13.30. COC No Chain of Custody Number assigned by the Client or STI. Richland. Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background. All known uncertainties associated with the result, u, the conditioned uncertainty. The uncertainty is absolute and in the same units as the result. Batch The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations. CRDL (RL) Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL) Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Level 1.65.4 * Surf2*(2*RegnoCan/R		Report Definitions
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Spec Rst(s) the results are in the same units. Work Order The LIMS software assign test specific identifier.	SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Yield The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.	Work Order	The LIMS software assign test specific identifier.
	Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

STL Richland rotGeneralInfo v3.72

Sample Results Summary

STL Richland STLRL

Ordered by Method, Batch No., Client Sample ID.

Report No.: 31649

SDG No: J00066

Date: 20-Mar-06

Client Id Batch Work Ord	ier Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
065446 7196_CR6		-						
J11J32								
H0PFC1AA	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	2.00E-03	
H0PFC1AE	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	2.00E-03	0.0
J11J33								
H0PE91AA	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	2.00E-03	
J11J35				_				
H0PFD1AA	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A	2.00E-03	2.00E-03	
No. of Results:	4			-				

RPD - Relative Percent Difference.

rptSTLRchSaSum mary2 V4.15.0 A97

U Quai - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

QC Results Summary STL Richland STLRL

Date: 20-Mar-06

Ordered by Method, Batch No, QC Type,.

Report No.: 31649

SDG No.: J00066

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yleid	Recovery	Blas	MDCIMDA
7196 CR6								
6065446 MATRIX	SPIKE							
H0PFC1AC	HEXCHROME	5.55E-01 +- 0.00E+00		mg/L	N/A	106%	0.1	2.00E-03
H0PFC1AD	HEXCHROME	5.57E-01 +- 0.00E+00		mg/L	N/A	106%	0.1	2.00E-03
6065446 LCS				_				
H0PTQ1AC	HEXCHROME	5.23E-01 +- 0.00E+00		mg/L	N/A	105%	0.0	2.00E-03
6065446 BLANK	20			_				
H0PTQ1AA	HEXCHROME	2.00E-03 +- 0.00E+00	U	mg/L	N/A			2.00E-03
No. of Results:	4			-				

STL Richland rptSTLRchQcSum

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software. mary V4.15.0 A97

^{- (}Result/Expected)-1 as defined by ANSI N13.30.

SAMPLE RESULTS

Lab Name:

STL Richland

SDG:

J00066

Collection Date: 3/2/2006 10:42:00 AM

Date: 20-Mar-06

Lot-Sample No.: J6C060172-2

Report No.:

31649

Received Date:

3/2/2006 2:35:00 PM

Client Sample ID: J11J32

COC No.:

RC-048-371

Matrix:

WATER

										Ordered by Client	Sample ID	, Batch No.
Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6			Work Order:	H0PFC1AA	Repo	ort DB ID: 9H0I	PFC10				
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	3/2/06		100.0	
							2.00E-03	N/A			ML	

No. of Results: 1

SAMPLE RESULTS

Lab Name:

STL Richland

SDG:

J00066

Collection Date: 3/2/2006 10:36:00 AM

Date: 20-Mar-06

Lot-Sample No.: J6C060172-1

Report No.:

31649

Received Date:

3/2/2006 2:35:00 PM

Client Sample ID: J11J33

COC No.:

RC-048-372

Matrix:

WATER

										Ordered by Client	Sample ID	Batch No.
Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	, Rpt Uni Lc		Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6			Work Order:	HOPE91AA	F	Report DB ID: 9H0F	PE910				
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	3/2/06		100.0	
							2.00E-03	N/A			ML	

No. of Results: 1

FORM!

SAMPLE RESULTS

Lab Name:

STL Richland

SDG:

J00066

Collection Date: 3/2/2006 9:45:00 AM

Date: 20-Mar-06

Lot-Sample No.: J6C060172-3

Report No.:

31649

Received Date:

3/2/2006 2:35:00 PM

Client Sample ID: J11J35

COC No.:

RC-048-374

Matrix:

WATER

									Ordered by Client Sample ID, Batch N		
Result	Qual	Count Error (2 s)	Total Uncert(2 s)				Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
7196_CR6			Work Order:	H0PFD1AA		Report DB ID: 9H0	PFD10				
2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	3/2/06		100.0	
						2.00E-03	N/A			ML	
	7196_CR6	Qual	Qual Error (2 s) 7196_CR6	Qual Error (2 s) Uncert(2 s) 7196_CR6 Work Order:	Qual Error (2 s) Uncert (2 s) Action Lev 7196_CR6 Work Order: H0PFD1AA	Qual Error (2 s) Uncert (2 s) Action Lev La 7196_CR6 Work Order: H0PFD1AA	Qual Error (2 s) Uncert(2 s) Action Lev Lc CRDL(RL) 7196_CR6 Work Order: H0PFD1AA Report DB ID: 9H0I 2.00E-03 U 0.0E+00 2.00E-03 mg/L N/A	Qual Error (2 s) Uncert(2 s) Action Lev Lc CRDL(RL) Rst/TotUcert 7196_CR6 Work Order: H0PFD1AA Report DB ID: 9H0PFD10 2.00E-03 U 0.0E+00 2.00E-03 mg/L N/A 1.	Qual Error (2 s) Uncert(2 s) Action Lev Lc CRDL(RL) Rst/TotUcert Prep Date 7196_CR6 Work Order: H0PFD1AA Report DB ID: 9H0PFD10 2.00E-03 U 0.0E+00 2.00E-03 mg/L N/A 1. 3/2/06	Result Count Count Uncert(2 s) Uncert(2 s) MDC MDA, Rpt Unit, Lc CRDL(RL) Rst/MDC, Analysis, Prep Date Size 7196_CR6 2.00E-03 U 0.0E+00 2.00E-03 mg/L N/A 1. 3/2/06	Result Count Qual Error (2 s) Total Uncert(2 s) MDC MDA, Action Lev Rpt Unit, Lc Yield Rst/MDC, Rst/TotUcert Analysis, Prep Date Total Sa Size Aliquot Size 7196_CR6 Work Order: H0PFD1AA Report DB ID: 9H0PFD10 2.00E-03 U 0.0E+00 2.00E-03 mg/L N/A 1. 3/2/06 100.0

No. of Results: 1

Date: 20-Mar-06

DUPLICATE RESULTS

Lab Name:

STL Richland

SDG:

J00066

Collection Date: 3/2/2006 10:42:00 AM

Lot-Sample No.: J6C060172-2

Report No.: 31649 **Received Date:**

3/2/2006 2:35:00 PM

Client Sample ID: J11J32

COC No.:

RC-048-371

Matrix:

WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6		.	Work Order: H	IOPFC1AE	Report 1	OB ID: HOF	FC1ER	Orig Sa DB ID: 9	HOPFC10		
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	3/2/06		100.0	
	2.00E-03	U	RPD	0.0		2.00E-03		N/A			ML	

No. of Results: 1

BLANK RESULTS

Date: 20-Mar-06

SDG:

J00066

Report No.: 31649

Lab Name: STL Richland

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6			Work Order:	H0PTQ1AA	Report	DB ID: HO	PTQ1AB		<u></u> .		
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1.	3/2/06		100.0	
						2.00E-03		N/A			ML	

No. of Results: 1

LCS RESULTS

Date: 20-Mar-06

SDG:

J00066

Report No.: 31649

Parameter	Result	Count Qual Error (2 s)	Total Uncert(2 s)	MDC MDA Uz		Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6		Work Orde	HOPTQ1AC	Report DB ID	: H0PTQ1	AS				
HEXCHROME	5.23E-01		0.0E+00	2.00E-03 mg/L	N/A	5.00E-0)1	105%	3/2/06	100.0	
					Rec Limits:	85	115	0.0		ML	

No. of Results: 1

Comments:

Lab Name: STL Richland

Matrix: WATER

V4.15.0 A97

MATRIX SPIKE RESULTS

Date: 20-Mar-06

Lab Name:

STL Richland

SDG:

J00066

Lot-Sample No.: J6C060172-2

Report No.: 31649

Matrix: WATER

Parameter	SpikeResult, Orig Rst Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Uz CRD	•	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 6065446 HEXCHROME	Work Order: H0P 5.55E-01 2.00E-03	FC1AC	Report DB ID: 0.0E+00	H0PFC1CW 2.00E-03		Orig Sa DB ID: N/A	9H0PFC10 105.51%			3/2/06	100.0 ML	7196_CR6
Batch: 6065446 HEXCHROME	Work Order: H0P 5.57E-01 5.55E-01	FC1AD	Report DB ID: 0.0E+00	H0PFC1DW 2.00E-03		Orig Sa DB ID: N/A	H0PFC1CV 105.89%			3/2/06	100.0 ML	7196_CR6

Number of Results: 2

Comments:

RER

Bias

Date: 20-Mar-06

MATRIX SPIKE DUPLICATE RESULTS

Lab Name:

STL Richland

SDG:

J00066

Lot-Sample No.: J6C060172-2

Report No.: 31649

Matrix: WATER

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s) MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 6065446	7196_CR6	·		Work Order:	H0PFC1AC	Rep	ort DB ID: H	IOPFC1CW	Ori	g Sa DB ID:	H0PFC1DW		
HEXCHROME	5.55E-01			0.0E+00	2.00E-03	mg/L	N/A	105.51%	5.26E-01	I	3/2/06	100.0	
	5.57E-01	RPI	0.4									ML	
Batch: 6065446	7196_CR6			Work Order:	H0PFC1AD	Rep	ort DB ID: H	IOPFC1DW	Ori	Sa DB ID:	H0PFC1CW		
HEXCHROME	5.57E-01			0.0E+00	2.00E-03	mg/L	N/A	105.89%	5.26E-01	l	3/2/06	100.0	
	5.55E-01	RPL	0.4									ML	

No. of Results: 2

Comments:

V4.15.0 A97



Richland Laboratory Data Review Check List Hexavalent Chromium

Work Order Number(s): H0PFC, H0PE9, H0PFD				
Lab Sample Numbers or SDG: Method/Test/Parameter: Crt 6 in WATER / PICH WC-5003 Pay 7				
Method/Test/Parameter: Cr+6 in WATER / RICH-WC-5003, Rev 7 Review Item	Yes (*)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Initial Calibration	1			
Performed at required frequency with required number of levels?			ļ	!
2. Correlation coefficient within QC limits?	~			
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	V			
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters < reporting limit?	V			
B. Continuing Calibration	~		:	
CCV analyzed at required frequency and all parameters within QC limits?	 			
2. CCB analyzed at required frequency and all results < reporting limit?	/	<u> </u>		
C. Sample Analysis	✓			
Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?				
2. Were all sample holding times met?	✓			
D. QC Samples 1. All results for the preparation blank below limits?	~			
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	1	<u> </u>	-	
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	1			
4. Analytical spikes within QC limits where applicable?	1		1	
5. ICP only: One serial dilution performed per SDG?		 	1	
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			1	
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within OC limits?			1	

Review Item	Yes (✓)	No (✓)	N/A (✓)		
E. Other				L	
Are all nonconformances included and noted?			1	•	
2. Is the correct date and time of analysis shown?	✓	1			•
Did the analyst sign and date the front page of the analytical run?	✓				
. Correct methodology used?	✓				
. Transcriptions checked?	✓			-	
. Calculations checked at minimum frequency?	✓				/
	✓				
	✓				
7. Units checked? mments on any "No" response					
	Date:		3/6/0	6	

Collecter Charles Coordinate Component of the RCBRA Water Sa Froiet Described No. 375-4688 Froiet Described No. 375-4688 Froiet Described No. 375-4688 Froiet Described No. 199-N-16 Sampline Location 199-N-16 COA SAF No. RC-048 Air Quality Lee Chest No. AFS 0.V 0.55 Field Lockbook No. EL-1592 BESRASS520 McGod 4 Shirment GOV VEHICLE Shinged To Severn Trent Boorporated, Richland NA POSSIBLE SAMPLE BAZARDS/REMARKS POTENTIAL RADIOACTIVE 2 7-02-3 Preservation Cod 4 Shirment No. No. of Container(s) Volume Comment Hear-7196 Volume Comment Hear-7196 Sample No. Matrix Sample Date Sample Time Sample No. Matrix Sample Date Sample Time Comment Hear-7196 Special Handley No. No. Matrix Sample Date Sample Time Supplement No. No. No. of Container(s) Sample No. Matrix Sample Date Sample Time Supplement No. No. No. of Container(s) Sample No. Matrix Sample Date Sample Time Supplement No. No. No. of Container(s) Supplement No. Of Container(s) Supplement No. Of Cont	Washington Closu	re Hanford		CHAII	N OF CUST	ODY/S	AMP	LE	ANAL	YSIS	RE	EQUES?			RC-	048-372	Page 1	of 1
100 Ares and 300 Ares Component of the RCBRA Water S 190 No. 16 190 Ares and 300 Ares Component of the RCBRA Water S 190 Ares and 300 Ares Component of the RCBRA Water S 190 Ares and 300 Ares Component of the RCBRA Water S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares and 300 Ares Component of Richard S 190 Ares Annalysis	Collector												nator	Pri	ce Code	7N		
Salused To Serves Treet Incorporated, Richland Office Property No. N/A POSSILE SAMPLE RAZARDKREMARKS POSSILE SAMPLE RAZARDKREMARKS SPECIAL Handling and/or Storage Special Handling and/or Storage SUCCOOL-6 SUCCOOL-		aponent of the RCBRA W			cation									Аіг	Quality		45	Days
Shipped To Offite Property No. Bill of Ladines Air Bill No. NA NA NA NA NA NA NA N	Ice Chest No. AFS	14 055	Fi		ok No.				20									
POSSELE SAMPLE HAZARD/REMARKS POTENTIAL RADIOACTIVE Special Handling ant/or Storage S (ACHOOLT 2) CCOL 4C SDL: SDC: SOCIAL No. of Container(s) Volume SOME Volume SOME SAMPLE ANALYSIS Sample No. Martix Sample No. Martix Sample No. JI 1333 WATER 3 - 2 - Clc / C3 Cc K AOCH Cremina SECULL INSTRUCTIONS Martix SPECIAL I	Shipped To		O		ertv No.							_	Air Bill	No.				
Special Handling and/or Storage T C C C C S C S S S S S S S S S S S S S		ARDS/REMARKS		1						ŀ				ļ				
Special Handling and/or Storage 2 (2000) 7 2 Type of Container(s) Type of Container(s)	POTENTIAL RADIOACTIVE	2	1-02-3		Preservation	Cool 4C							_					
Ne. of Container(s) Volume Stond Volume Volum	Special Handling and/or	Storage J W	Flow	Σ Τ γ ι	e of Container													
SAMPLE ANALYSIS Sample No. Matrix * Sample Date Sample Time J11,J33 WATER 3 - 2 - Clo / C3 C X WORE CHAIN OF POSSESSION Sign/Frint Names Date/Time / Z Z D Date/Time / Z Z		_			of Container(s)		↓_											
SAMPLE ANALYSIS Sample No. Matrix * Sample Date Sample Time JI1133 WATER 3-2-Clo /C3C X NORE CHAIN OF POSSESSION Sign/Print Names CHAIN OF POSSESSION Date/Time /Z 20 Received By/Stored in Chair Time /Z 20 Supplementally from Chai	,	الحالك والعام	.0		Volume	500mL	ĺ					:						
JIIIJ33 WATER 3-2-CL /C34 X 1084 CHAIN OF POSSESSION Sign/Print Names DEPARTMEND FROM DATE/Time /Z 20 Received By/Stored In Section By/Stored In Date/Time Relinquisited By/Removed From Date/Time Received By/Stored In Date/Time													į					
CHAIN OF POSSESSION Sign/Print Names Disposed By/Remayed From Disposed By/Remayed From Disposed By/Removed By/Removed From Disposed By/Removed From Disposed By Dispose	Sample No.	Matrix *	Sample D	Date	Sample Time		eligi el electrica. Notas	::.						[
CHARTORY Sylvamoved From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	J11J33	WATER	3-2-	06	1036	X	Hot	2					<u> </u>	į				
CHARTORY Sylvamoved From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time Date/Time	<u> </u>				 	 	+						}					
CHAIN OF POSSISSION Date/Time / 2 20 S.J. O.L. Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY Received By Title Date/Time					 	<u> </u>	 						\vdash	-				
CHAIN OF POSSISSION Date/Time / 2 20 S.J. O.L. Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY Received By Title Date/Time			· · · · · · · · · · · · · · · · · · ·			 	┼─						<u> </u>				,	<u> </u>
Detecting By/Removed From Date/Time / 2 O Received By/Stored In Date/Time / 2 To S.J. O.L. S.J. S.J. O.L. S.J. S.J. O.L. S.J. S.J. O.L. S.J. S.J. S.J. S.J. S.J. S.J. S.J. S	CHAIN OF POSSESSI	 ON	Sign/	Print Name		<u>!</u>		SPEC	IAL INSTR	UCTIO	ONS	<u> </u>	<u> </u>		-	L		Matrix *
Relinquished By/Removed From Date/Time Received By/Stored In Date/Time Relinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY SECTION Received By Title Disposed By Date/Time Date/Time Date/Time	DEPARTED By/Removed From E. PARCHEN Relinquished By/Removed From SIGALE SYSTEM Relinquished By/Removed From Relinquished By/Removed From	Date/Time /2 2 3-2-0 4 Well Date/Time 3 20 6 1435 Date/Time	Received By SJGA Received By Received By	y/Stored In LESS y/Stored In y/Stored In	By So Do	3-2	-06 -06											SH=Sediment SO=Staid Sl=Skalge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue
Relinquished By/Removed From Date/Time Received By/Stored In Date/Time LABORATORY SECTION Disposal Method Disposed By Date/Time Disposed By Date/Time	Relinquished By/Removed From	·	Received By	y/Stored In		<u> </u>												LeLiquid VaVegetnice
LABORATORY SECTION Received By Title Date/Time FINAL SAMPLE Disposal Method Disposed By Date/Time	Relinquished By/Removed From	Date/Time	Received B	y/Stored In														X=Other
SECTION FINAL SAMPLE Disposal Method Disposed By Date/Time	Relinquished By/Removed From	Date/Time	Received B	y/Stored In	D:	ate/Time												
FINAL SAMPLE Disposa memor	Discourage	Ву				T	ide									D	ate/Time	
		Method				<u> </u>	·		Dispo	sed By		-				E	ate/Time	

BHI-EE-011 (08/29/2005)

Washington	n Closure F		CH	AIN OF CUST	CODY/S	AMI	PLE	ANAL	YSIS	RE	EQUEST	<u> </u>		RC-	-048-371	Page 1	of <u>1</u>	
Collector	R.T. SK	XLE			y Contact KESSNER	Telepho 375-4						iect Coordin SSNER, JH	ator	Pric	e Code	7N		naround
Project Designation 100 Area and 300	Area Compone	at of the RCBRA	Water Sa	Samplin 199-N	g Location I-92A		·					F No. -048		Air	Quality		45 I	Days
ice Chest No.	-504 0	55	•	Field Lo EL-15	gbook No. 192		COA BESI	A RAS65	20			thod of Ship 30V. VEHIC						
Shipped To Severn Trent Inco		-		Offsite I	Property No.							l of Lading// N/A	Air Bill I	No.				
POSSIBLE SAMP	PLE HAZARD	VREMARKS				1				1								
POTENTIAL RADI	OACTIVE	Joox	ni .		Preservation	Cool 4C									·			
Special Handling	g and/or Stor	•	Ψφ		Type of Container	G/P	 							\downarrow		ļ		
COOL 4C					No. of Container(s)	_ '					_							
					Volume	500mL												
		SAMPLE ANA	LYSIS			Chromium Hex - 7196												
Sample N	lo.	Matrix *	Sampl	e Date	Sample Time	F		7			F							्राष्ट्रकृष्टिक्याः स्टब्स्
J11J32		WATER	3-2-		1042	X	Но	\$E		and the second second	:		<u> </u>					`
						<u> </u>												
						<u> </u>	<u> </u>			<u> </u>						<u> </u>		
						<u> </u>												
		_																
CHAIN OF P	OSSESSION		-	n/Print l			!:	SPEC	IAL INST	RUCTIO	ONS							Matrix *
Relinquished Relinquished	ALE.	Date/Time / 23 3-2-06	500	By/Stored	1Xel- 32	ate/Time /2												S=Soil SE=Sediment SO=Solid
Relinquished By/Remon	the 32	- Date/Time 06 1435	Received	By/Stored		Size/Time 14	સૂર્ક											Si-Sludge W = Water
Relinquished By/Remov		Date/Time		By/Stored		ate/Time	\dashv											O=Oil A=Air DS=Drum Solids DL≠Drum Liquids
Relinquished By/Remov	ved From	Date/Time	Received	i By/Stored	l In Da	ate/Time												T=Tissue Wi=Wipe L=Liquid
Relinquished By/Remov	ved From	Date/Time	Received	i By/Stored	la Da	ate/Time												V=Vegetation X=Other
Relinquished By/Remov	ved From	Date/Time	Received	i By/Stored	lin Da	ate/Time												
LABORATORY SECTION	Received By	- .				Ti	tie									D	ate/Time	
FINAL SAMPLE DISPOSITION	Disposal Method	i							Disp	osed By						Ī	Pate/Time	

BHI-EE-011 (08/29/2005)

Washington Closure Hanford					CHAIN OF CUSTODY/SAMPLE ANALYSIS										RC-048-374			of 1
Collector	DURA R.R.F	EX CX			ny Contact N KESSNER	Telepho 375-4						ject Coordii SNER, JH	12tor	Pri	ce Code	7N	Data Tu	rnaround
Project Designation 100 Area and 300		onent of the RCBRA	Water Sa		ne Location N-28							No. 048		Air	Quality		45	Days
Ice Chest No.	509	055			ogbook No. 592		CO. BES	A RAS65	520			hod of Ship OV. VEHIC						
Shipped To Severn Trent Inco	orporated, Ri	chland		Offsite N/A	Property No.					_		of Lading/	Air Bill	No.				
POSSIBLE SAMI	PLE HAZAI	rds/remarks																
POTENTIAL RADI	OACTIVE			ļ	Preservation	Cool 4C												
 Special Handlin	g and/or Si	orage			Type of Container	G/P				<u> </u>				\dashv				
COOL 4C					No. of Container(s)	I	<u> </u>			<u> </u>								
					Volume	500maL												
		SAMPLE ANA	ALYSIS			Chromium Hex - 7196												
						E											5	
Sample N	io.	Matrix *	Sam	ple Date	Sample Time					تلادان								
J11J35		WATER	3/2	906	0945	<u> </u>	Hc	ŞΕ		 				_	<u>.</u>			
			 			<u> </u>	1			<u> </u>			_	4				-
						<u> </u>				<u> </u>				_		ļ		ļ
			-			ļ	 			<u> </u>				\dashv				
CHAIN OF P	- COCEDORA			· m · ·	N	<u> </u>	<u> </u>			<u>L</u>		_				<u> </u>		Matrix *
Relinquished By Kang	red Front	Date/Time /2	Receive 5.J		din was MAR	ate/Time /2 0 2 2006 pte/Time /4	ı	SPEC	IAL INSTI	RUCTIC	ONS							S=Smil SE=Sodiment SO=Solid
Relinquished By/Remov		206 143	DAV	ed By/Store	3 Birser	3-2-6	6											SI=Studge W = Water O=Oil
Relinquished By/Rednov	ved From	Date/Time		ed By/Store		ate/Time												A=Air D\$=Drum Solids DL=Drum Liquids
Relinquished By/Remov	ved From	Date/fime	Receiv	ed By/Store	d In Di	ate/Time												T=Tisrue Wl=Wipe L=Liquid
Relinquished By/Remov	ved From	Date/Time	Receiv	ed By/Store	d In Di	ate/Time												V=Vegetation X=Other
Relinquished By/Remov	ved From	Date/Time	Receiv	ed By/Store	d In Di	ate/Time												
LABORATORY SECTION	Received By	•				Ti	ilc								·	D	ate/Time	
FINAL SAMPLE DISPOSITION	Disposal Met	hod				,			Dispo	sed By						Ē	ate/Time	
L																		

BHI-EE-011 (08/29/2005)



Sample Check-in List

Date/Tir	ne Received: 39	100 H:35		
Client:_	BHI	sdg#:	10 NA[] SAF#: R	C-048 NA[]
Work O	rder Number: 50	C010172	Chain of Custody #RC-	048-372
Shippin	g Container ID:	(Ps-01-05 5	Air Bill # N/A	
1.	Custody Seals on	shipping container intact?	NA[]	Yes [No []
2.	Custody Seals date	ed and signed?	NA []	Yes [4] No []
3.	Chain of Custody	record present?		Yes [No []
4.	Cooler temperatur	e:NA [4] 5.V	ermiculite/packing material	s is NA[] Wet[]Dry[]
6.	Number of sample	es in shipping container:		
7.	Sample holding ti	mes exceeded?	NA []	Yes [No []
8.	Samples have:tapecustody sea	ls	hazard labele	s camples labels
9.	Samples are:in good conbroken	dition	leaking have air bub (Only for samples	bles requiring head space)
10.	Sample pH taken?	NA[] pH<2[]	pH>2 [] adjusted p	oH[]
11.		Sample Collector Listed? *on only. No corrective acti		Yes [No []
12.	Were any anomal	ies identified in sample rec	eipt?	Yes [] Not
13.	Description of an	omalies (include sample nu	mbers):	
Sample	Custodian:	Md	Date: 3 -6 -	-06
Cli	ent Sample ID	Analysis Requested	Condition	Comments/Action
Client Is	nformed on	by	Person contacted_	<u> </u>
	action necessary; pro			
• •	• •		Date	
1.5-023	12/05. Rev. 6		·	

	_
3/6/2006	3 4:21:
127642, Hanford,	Becht
Hanford,	Inc.
l	 6

3/6/2006 4:21:52 P	М		Sample Pr	eparation/A	nalysis		Balance Id:	
127642, Bechtel Hai Hanford, Inc.	nford, Inc.		O SAMPLE PREPA hromium, Hexavale		RMED / DIREC	•	Pipet #:	
Report Due: 04/17	/2006	51 C	LIENT: HANFORD			Sej	p1 DT/Tm Tech:	
Batch: 6065446	WATER	mg/L	PM	, Quote: HC ,	27023	Se	p2 DT/Tm Tech:	
SEQ Batch, Test: None	e All Tests: 6065446	i 88EA,					Prep Tech:	
Work Order, Lot,	Total	Initial Aliquot	QC Tracer	Count	Detector	Count On Off	CR Analyst,	Comments:
Sample DateTime	Amt/Unit	Amt/Unit	Prep Date	Time Min	ld	(24hr) Circle	Init/Date	
HOPE9-1-AA								
6C060172-1-SAMP						·		
						0	46.6	0-4
3/02/2006 10:36		AmtRec: 500ml	#Containers: 1			Scr.	Alpha:	Seta:
HOPFC-1-AA		•						
6C060172-2-SAMP								
		4-4D 500-d	#Containers: 1			Scr:	Alpha:	Beta:
3/02/2006 10:42		AmtRec: 500ml	#Containers: 1	·			льна.	0012.
HOPEC-1-AC-S								
6C060172-2-MS						<u> </u>		
03/02/2006 10:42		AmtRec: 500ml	#Containers: 1			Scr.	Alpha:	Seta:
HOPEC-1-AD-D								
6C060172-2-MSD								
			·				· · · · · · · · · · · · · · · · · · ·	
3/02/2006 10:42		AmtRec: 500ml	#Containers: 1			Scr:	Alpha:	Beta:
HOPFC-1-AE-X	<u> </u>	<u> </u>						
6C060172-2-DUP								
								_
3/02/2006 10:42		AmtRec: 500ml	#Containers: 1			Scr:	Alpha:	Beta:
HOPFD-1-AA				٠				
6C060172-3-SAMP								
3/02/2006 09:45		AmtRec: 500ml	#Containers: 1			Sar.	Alpha:	Beta:
HOPTQ-1-AA-B		· · · · · · · · · · · · · · · · · · ·		·				<u></u>
6C060000-446-BLK								
3/02/2006 10:42		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
STL Richland Ke	v In - Initial Amt fi -	Final Amt, di - Diluted Ar	mt. s1 - Sep1, s2 - Sep	2 Page 1	ISV -	Insufficient Volume for A	unalysis	WO Cnt: 7
Richland Wa.		erence Dt, ec-Enrichment						ICOC v4.8.1

3/6/2006 4:21:54 PM				88 NO SAMPLI	nple Prepara	N PERFORME		T INJECTION		
Report Due: 04/17/2	006		•	EA CHIOMIUM, 51 CLIENT: HA	Hexavalent (719 NFORD	30A)		Sep	1 DT/Tm Tech:	
Batch: 6065446		m	g/L						2 DT/Tm Tech:	
SEQ Batch, Test: None									Prep Tech:	
								2010	-	II Commonto
Work Order, Lot, Sample DateTime	Tota Amt/U		Initial Aliqu Amt/Unit			ount D ne Min	etector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
8 HOPTQ-1-AC-C										
J6C060000-446-LCS										
03/02/2006 10:42			AmtRec:	#Contain	ers: 1			Scr:	Alpha:	Beta:
Comments:			-			-	•	<u> </u>		
00:11:10:12:										
All Clients for Batc 127642, Bechtel		Inc.	-	Bechtel	Hanford, Inc.	, в	2702	3		
HOPE91AA-EAMP Consti HEXCHROME RDL:0.		t: mg/L	LCL:85	UCL: 115	RPD:20					
HOPFCIAC-MS: HEXCHROME RDL:0.	002	mg/L	LCL:85	UCL: 115	RPD:20					
HOPFC1AD-MSD:		_		UCL: 115	RPD:20					
HEXCHROME RDL:0. HOPTQ1AA-BLK:	.002	mg/L	LCL:85							
HEXCHROME RDL:0. HOPTQ1AC-LCE:	.002	mg/L	LCL:	UCL:	RPD:					
HEXCHROME RDL:0.	.002	mg/L	LCL:85	OCL:115	RPD:20					
HOPE91AA-SAMP Calc) Uncert Level (Decay to	SaDt: Y	Blk Subt.:	W Sci.Not	.: Y ODR	: B			
HOPFCLAC-MS:		_		Blk Subt.:	N Sci.Not	.: Y ODRs	. n			
Uncert Level (# HOPFCIAD-MSD:	FS)-1 4	necell co	SaDt: Y							
Uncert Level (i EOPTOLAA-BLK:	s)_: 2 /	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not	.: Y ODRS	: B			
Uncert Level (4 EOPTQLAC-LCS:	ls).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not	.: Y ODRA	: B			
Uncert Level (i	ls).: 2	Decay to	SaDt: Y	Blk Subt.:	N Sci.Not	.: Y ODRE	: B			
. 7						Approved By	r		Date:	
	•									
								1		WO CEL P
_				ted Amt, s1 - Sep iment Cell, ct-Coo		age 2	157 -	Insufficient Volume for A	naiysis	WO Cnt: 8 ICOC v4.8.18